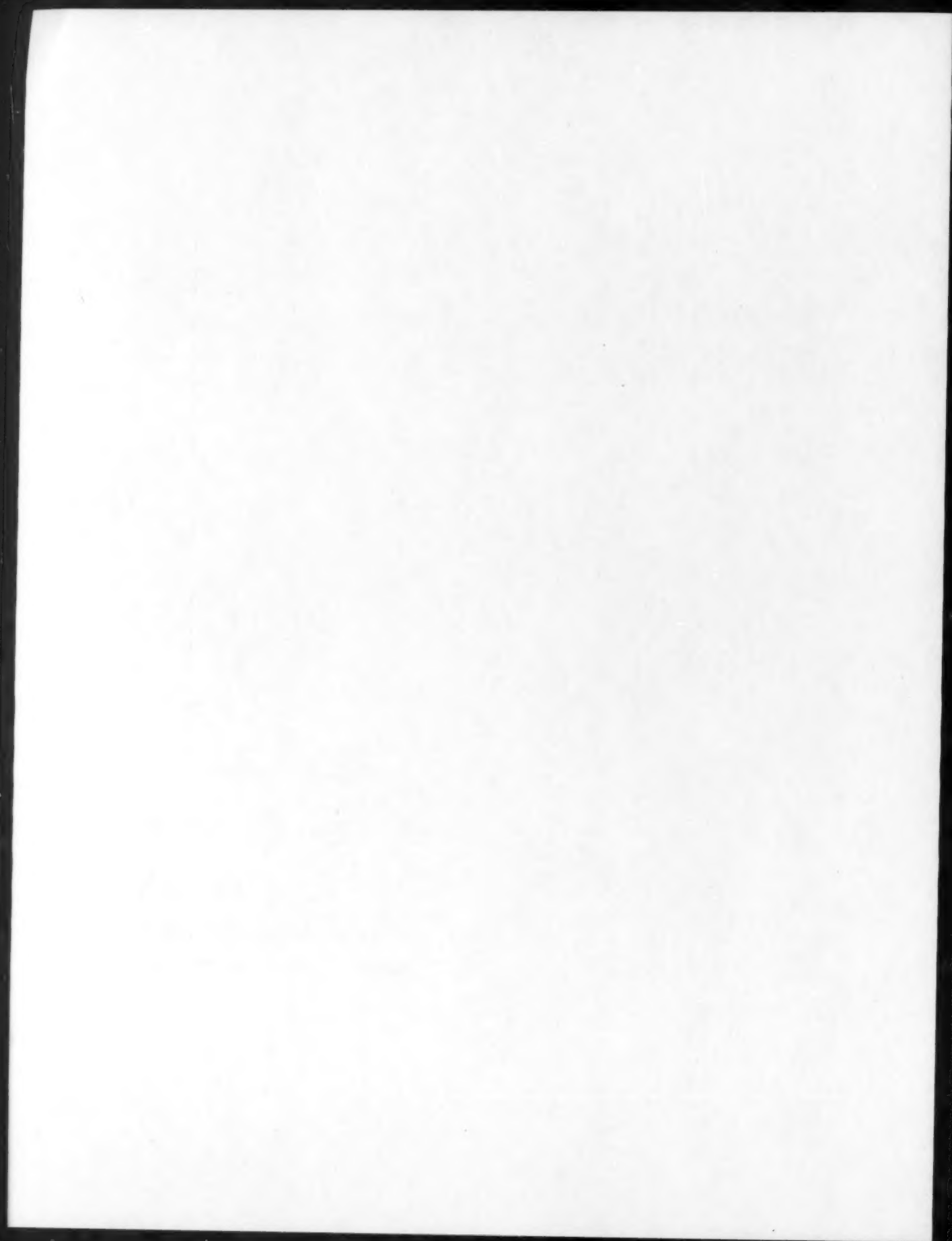

INDEX

SOVIET MATERIALS SCIENCE

Volume 7, Numbers 1-6, 1971



SOVIET MATERIALS SCIENCE

Volume 7, Numbers 1-6, 1971

(A translation of Fiziko-Khimicheskaya Mekhanika Materialov)

A

Abasov, S. A. - 182
 Abbasov, T. F. - 182
 Alekseev, V. I. - 288
 Al'tman, V. A. - 406
 Alyab'ev, A. Ya. - 54, 98, 146
 Ammosova, L. M. - 86
 Andryushechkin, V. I. - 356
 Anosov, Yu. I. - 464
 Antipova, I. A. - 588
 Arkharov, V. I. - 689
 Arone, R. G. - 189
 Artem'ev, V. I. - 139
 Averchenko, P. A. - 421
 Azbukin, V. G. - 205
 Azhugin, F. F. - 683, 720

B

Babei, Yu. I. - 6, 111, 232,
 240, 248, 486, 489, 511, 610,
 612, 704, 711
 Bagirov, M. A. - 182
 Bakakin, G. N. - 728
 Bakeev, N. F. - 442
 Balinskii, A. I. - 349
 Bal'tenas, R. A. - 680
 Banas, I. P. - 131
 Bareishis, I. P. - 674
 Barenblatt, G. I. - 124
 Bartenev, G. M. - 433, 547,
 739
 Baushis, Ya. P. - 674
 Bazilevich, Z. A. - 71, 632
 Beider, É. Ya. - 358, 445
 Belitskii, M. E. - 574, 660
 Belkov, V. M. - 340
 Belov, Yu. K. - 594
 Belyakov, V. E. - 400
 Berezhnitskii, L. T. - 113,
 189, 473
 Besedina, L. P. - 192
 Bezykornov, A. I. - 507
 Bichuya, A. L. - 336
 Bogachev, I. N. - 155
 Bogomolov, N. I. - 27, 292,
 527

Borisenko, M. P. - 594

Borisov, E. V. - 346
 Borisova, N. S. - 86
 Borshchevskaya, A. Z. - 414
 Brodyak, D. D. - 356
 Bryk, M. T. - 369
 Brykov, N. N. - 424
 Burak, Ya. I. - 192
 Bushko, R. P. - 18
 Butnik, A. P. - 59

C

Chaeveskii, M. I. - 219, 577
 Cherepin, V. T. - 340
 Chikhachev, O. P. - 499
 Churakov, M. M. - 223, 541

D

Daliso, V. B. - 482, 586, 709
 Dashko, N. M. - 448
 Datsyshin, A. P. - 751
 Davydova, L. N. - 315
 Deev, I. S. - 438
 Demin, V. B. - 307, 697
 Denisova, R. A. - 464
 Den'shchikova, G. I. - 331
 Derbasov, N. M. - 664
 Deryabina, V. I. - 14
 Didoshak, V. I. - 482, 586, 657
 Dikii, I. I. - 374, 392
 Dmitrakh, N. D. - 277
 Drozd, N. P. - 245
 Dushin, Yu. A. - 89
 Dutchak, Ya. I. - 618
 Dutsyak, Z. G. - 6
 Dyakiv, I. R. - 151

E

Eremenko, V. N. - 223, 541
 Eremina, M. I. - 689
 Érfan, P. G. - 171, 639
 Evdokimov, V. D. - 18

F

Faradzhov, R. M. - 646
 Fedorchenko, I. M. - 75
 Fedorenko, V. V. - 410
 Feoktistov, V. A. - 643
 Filatov, V. M. - 701
 Filippova, Z. K. - 606
 Fokin, M. N. - 318
 Fomichev, I. A. - 121
 Fomin, V. V. - 604
 Frenchko, V. S. - 618
 Fridman, A. A. - 406

G

Gaidarenko, A. D. - 660
 Gainutdinov, R. G. - 100, 597
 Galapats, B. P. - 756
 Garlinskii, R. N. - 571
 Gavranek, V. V. - 606
 Gavrish, V. A. - 429
 Gel'd, P. V. - 307, 697
 Georgi, I. N. - 614
 Gladkii, S. I. - 103
 Gladkovskii, V. A. - 599
 Glukhovskaya, G. I. - 67
 Gluskin, Ya. A. - 406
 Gnatyshak, N. N. - 511
 Gnidets, B. M. - 756
 Gnyp, I. P. - 657
 Golikhman, M. S. - 537
 Golego, N. L. - 54, 353, 621,
 660
 Golego, N. N. - 285
 Golovastov, E. S. - 457
 Gol'tsov, V. A. - 307, 697
 Golubets, V. M. - 484, 511
 Gorbunov, N. S. - 593
 Gordienko, V. P. - 677
 Gorshkov, Yu. V. - 720
 Goryachev, P. T. - 593
 Goryunov, Yu. V. - 327, 331,
 530
 Gribovskii, Ya. S. - 491
 Gubenkova, O. A. - 683
 Gudimov, M. M. - 185, 251,
 358, 457

Gumetskii, R. A. - 364
Gurvich, L. Ya. - 396
Gurzhavina, T. G. - 366
Guseva, G. M. - 139
Guts, A. V. - 686

I

Il'ina, L. V. - 283
Isaichev, V. I. - 340
Ivanets, V. I. - 493
Ivanova, N. I. - 327, 530
Ivashchenko, Yu. N. - 340
Izyumov, V. A. - 484

K

Kabakchi, A. M. - 67
Kachmar, B. F. - 311, 747
Kadar, I. I. - 208
Kadomskii, V. P. - 31
Kagan, G. E. - 307
Kalichak, T. N. - 242, 265
Kalinin, N. G. - 179, 457
Kalinnikov, E. S. - 403
Kamenskaya, G. G. - 414
Kanchenko, L. P. - 221
Karasev, L. P. - 731
Karasyuk, Yu. A. - 155
Karlashov, A. V. - 51, 100, 236, 388, 597
Karpenko, G. V. - 1, 48, 95, 111, 205, 208, 240, 242, 255, 262, 304, 377, 486, 518, 520, 612, 643, 704, 709, 711, 744
Karpov, V. L. - 62, 452
Katsov, K. B. - 91, 722, 725
Kazimirschik, Yu. A. - 292
Kestel'man, V. N. - 366, 464
Kharchenko, I. V. - 292
Khegai, L. A. - 550
Khirovetetskii, V. M. - 300
Khitarishvili, M. G. - 219, 392
Khokhlova, S. I. - 689
Khorol'skii, V. M. - 567
Khrunik, R. A. - 725
Khukmatov, A. I. - 171
Kidin, I. N. - 356
Kirievskii, B. A. - 75
Klochkov, L. A. - 418
Klym, N. M. - 618
Kolesnichenko, L. F. - 22, 211, 502
Kolgin, N. N. - 14
Koliushko, B. F. - 205
Kolyano, Yu. M. - 567
Komarova, L. P. - 745
Kondratenkov, I. V. - 219, 577

Kondratov, V. M. - 601
Kopan', V. S. - 654
Kormilitsyna, G. N. - 283
Korolev, A. Ya. - 438
Korotushenko, G. V. - 604
Koryukin, A. V. - 185
Koval', V. P. - 232
Koval'chenko, M. S. - 288, 418, 584
Koval'chuk, Yu. M. - 353, 621
Kovalenko, B. V. - 624
Kovbasenko, V. V. - 211
Kozemchuk, R. S. - 616
Kozlov, P. V. - 442
Kozlov, V. A. - 185
Kravchuk, O. I. - 571
Kripyakevich, R. I. - 215, 311, 630, 686, 747
Kritsuk, A. A. - 175
Krivenko, L. F. - 285
Krokhmal'nyi, A. M. - 709
Kudlak, S. M. - 245
Kudryavtsev, P. I. - 646
Kuklyak, N. L. - 151
Kulagin, N. S. - 54
Kulik, B. K. - 292
Kurilo, I. I. - 103, 315
Kurov, O. V. - 230
Kuslitskii, A. B. - 103, 315, 722
Kuznetsov, E. I. - 574

L

Labunets, V. F. - 285
Langer, N. A. - 228
Larikov, L. N. - 340
Latyshev, V. N. - 296
Lazarenko, É. T. - 624
Lebedev, D. V. - 668
Leenson, V. G. - 374
Lelinkov, O. S. - 361
Levchenko, V. P. - 697
Levtanova, N. M. - 356
Libatskii, L. L. - 733
Lipchin, N. N. - 499
Litvin, A. K. - 358
Luk'yanov, O. P. - 14
Luk'yanova, I. N. - 504
Lupakov, I. S. - 701
Lushchik, V. V. - 175
Lyapin, K. S. - 34
Lyashko, V. A. - 660
Lysenko, A. V. - 654
Lyubchenko, A. P. - 728

M

Machavariani, Z. P. - 742

Magazinova, L. N. - 366, 464
Maksimenko, E. A. - 340
Maksimovich, G. G. - 245, 265
Malitskaya, I. G. - 175
Mal'tsev, G. V. - 534
Manyuk, Z. M. - 142
Marinin, A. A. - 604
Markovskii, E. A. - 75
Martynova, N. K. - 534
Maslov, L. I. - 651
Matseiko, M. M. - 262
Matveishin, E. N. - 351
Mekhanoshina, L. N. - 223
Melekhov, R. K. - 228, 403
Mel'nikov, M. V. - 340
Memelov, V. L. - 406
Merkushev, A. A. - 238, 716
Mervinskii, R. I. - 624
Mikhailov, P. A. - 131
Mikhailov, S. K. - 89
Mikhaleva, R. S. - 14
Mikhalko, V. D. - 654
Mikheev, A. A. - 385
Mikhlin, N. M. - 34
Mikitishin, S. I. - 364
Mikityuk, O. A. - 160
Milichenko, S. L. - 351
Milyakov, A. P. - 604
Mindyuk, A. K. - 232, 321, 380, 489, 608, 610, 704, 718
Mineev, A. S. - 119, 202, 219
Mitsai, L. V. - 635
Mizetskii, V. L. - 336
Moisa, M. I. - 300, 731
Moiseev, R. G. - 248
Molchanov, B. I. - 457
Monoshkov, A. A. - 601
Moroz, T. T. - 689
Morozov, A. S. - 588
Moskaleichik, F. K. - 714
Mozharov, M. V. - 728
Mukha, I. M. - 627
Mukhammed, Ya. - 442

N

Nagirnyi, S. V. - 265
Nagornyi, P. L. - 39, 424
Narzullaev, B. N. - 171, 639
Nemanov, M. S. - 238, 599, 716
Nevzorov, B. A. - 504
Nikitin, V. I. - 550
Nikit'skii, A. V. - 67
Nikonorova, A. I. - 86
Novokhatskii, I. A. - 689
Novokreshchenov, I. A. - 374
Novokreshchenov, P. D. - 534

O

Ol'khovich-Novosadyuk, N. A. - 179
Ol'shanetski, V. E. - 131
Orlov, F. I. - 624
Orlova, A. I. - 361
Osadchuk, V. A. - 476
Osikina, E. S. - 251
Osipova, L. V. - 366
Oslon, N. L. - 499
Otblesk, B. E. - 98
Ovsyannikov, B. M. - 668

P

Panamarchuk, V. G. - 353
Panasyuk, V. V. - 113, 189, 277, 473, 751
Panferov, K. V. - 742
Panfilova, S. Ya. - 594
Parkheta, R. G. - 215
Pashkov, P. O. - 385
Pashkov, P. P. - 406
Paslen, V. I. - 421
Pavlenko, V. S. - 108
Pavlov, V. I. - 749
Pavlov, V. S. - 315
Pelekh, B. L. - 116, 470, 544
Peregudova, T. V. - 406
Perlin, S. M. - 462
Permyakov, V. G. - 285
Perov, B. V. - 179, 251
Pertsov, N. V. - 327, 442, 530
Petergeriya, D. M. - 594
Petrina, Yu. D. - 479
Petrovskaya, L. M. - 590
Plkh, V. S. - 106, 515
Plaskeev, E. V. - 683
Pleskach, V. M. - 421
Plyatsko, G. V. - 300, 556, 731
Poberezhnyi, O. V. - 198
Podolskaya, S. Sh. - 318
Podstrigach, Ya. S. - 192
Pogoretski, P. G. - 208, 262, 377, 518
Pokhmurski, V. I. - 242, 356, 482, 484, 491, 515, 586, 657, 709
Polukarova, Z. M. - 81
Ponomarenko, E. P. - 221, 590, 594
Popov, V. P. - 484, 680
Popov, V. S. - 39, 424
Popovich, V. V. - 336, 537
Potapov, V. V. - 48, 205
Potekhin, V. A. - 601
Preis, G. A. - 108, 221, 759
Prikhod'ko, O. G. - 121

Prishlyak, A. M. - 208, 377, 518
Pushkarev, V. V. - 75

R

Rachmatov, A. Sh. - 639
Radchenko, A. I. - 51
Raikin, V. G. - 361
Raiko, M. V. - 31
Razumovskaya, I. V. - 547
Repin, V. D. - 139
Rizol, A. I. - 45
Rodchenkov, B. S. - 701
Romanenkov, I. G. - 742
Romaniv, O. N. - 151, 479
Romanov, V. V. - 400
Roter, E. A. - 372, 581
Rozum, O. F. - 624
Rubenchik, Yu. I. - 520, 643
Rudakov, A. A. - 601
Rudenko, V. P. - 103
Ryaboshapchenko, V. I. - 18
Ryabov, B. F. - 511
Ryabov, V. R. - 59

S

Sakharov, A. V. - 720
Samsonov, G. V. - 343, 507
Sarabeev, V. F. - 462
Savenko, P. A. - 556
Savitskaya, O. P. - 489, 610, 718
Savruk, M. P. - 467, 561, 753
Sayutin, G. I. - 292, 527
Seifi, R. N. - 725
Semchishin, I. V. - 215, 686
Semenova, G. P. - 438
Sentyurin, E. G. - 251, 445
Severin, P. A. - 410
Severinchik, N. A. - 208, 377, 518
Sharapov, V. M. - 693
Shatinski, V. F. - 268, 537, 571
Shavyrin, V. N. - 234
Shchepanski, Ya. S. - 265
Shcherba, N. D. - 632
Shchukin, E. D. - 81, 160, 327
Shelestovskii, B. G. - 556
Shetulov, D. I. - 135, 280
Shevelya, V. V. - 54, 98, 146
Shibarov, V. V. - 280
Shil'nikova, G. K. - 336
Shiryaev, A. T. - 86
Shlyafirner, A. M. - 714
Shreiber, G. K. - 462

Shtepan, Ya. G. - 627
Shtykalo, I. G. - 268
Shubadeeva, L. I. - 396
Shul'ga, B. N. - 248
Shul'te, A. Yu. - 403
Shumkin, A. B. - 39
Shved, M. M. - 95, 226, 242, 304, 616
Shvets, R. N. - 78
Sidorak, I. I. - 215, 311, 747
Sidorenko, V. M. - 311, 747
Sirenko, I. G. - 116, 544
Sirin, Yu. P. - 599
Sklyarov, N. M. - 385
Slabkovskii, I. S. - 616
Slyn'ko, A. I. - 759
Smolyanitskaya, I. V. - 445
Snovidov, V. M. - 527
Soboleva, N. P. - 86
Sokolov, L. D. - 280
Sologub, N. A. - 759
Solomko, V. P. - 677
Sorochko, E. V. - 745
Sorokivskii, I. S. - 248
Soshko, A. I. - 67, 160, 166, 179, 358, 372, 445, 457, 459, 635, 671
Spas, Ya. M. - 459
Sporyagin, E. A. - 448
Stadnikov, M. T. - 410
Stakov, O. V. - 504
Starchak, V. G. - 315
Stefyuk, T. Yu. - 581
Steklov, O. I. - 139, 523
Stepanov, V. F. - 62, 452
Stepanov, V. N. - 651
Stinskas, A. V. - 674
Strashinskaya, L. V. - 83
Summ, B. D. - 331
Suprunchuk, V. K. - 221
Suprunchuk, V. V. - 221
Suvorova, G. S. - 234
Svisgun, R. P. - 230
Svist, E. I. - 610, 704, 718
Sychev, V. S. - 507
Sychev, V. V. - 584
Sysak, R. D. - 470
Sytsi, Yu. V. - 457

T

Tabinski, K. P. - 48, 484, 491
Teodorovich, V. P. - 14
Terekhin, G. S. - 22
Terent'ev, V. F. - 651
Tereshchenko, A. F. - 429
Teterskii, V. A. - 372, 581
Tikhonovich, V. I. - 75
Timonin, V. A. - 318, 614

Tkachenko, N. N. - 48, 205, 273
 Tkachenko, Yu. G. - 343, 418, 584
 Tkachev, V. I. - 358
 Tokarev, V. P. - 236, 388
 Torbilo, V. M. - 716
 Tovstenko, Yu. V. - 221
 Traktovenko, A. I. - 331
 Trofimovich, A. N. - 121
 Trush, I. I. - 113
 Trush, I. Kh. - 285
 Trushko, P. V. - 502
 Truskov, P. F. - 353, 621
 Tsygel'nyi, I. M. - 372
 Tynnyi, A. N. - 67, 71, 160, 179, 457, 459, 632

U

Udovitskii, V. I. - 588
 Utevskaia, L. E. - 361

V

Vagulla, R. G. - 491
 Vaisberg, S. É. - 62, 452
 Valakina, V. M. - 406
 Val'chuk, G. I. - 627
 Van'kovich, R. I. - 215, 630, 747

Vashchilo, T. P. - 45
 Vasilenko, I. I. - 1, 228, 230, 232, 374, 392, 403
 Vasil'ev, M. A. - 340
 Vedenyapin, G. A. - 346
 Veksler, Yu. G. - 155
 Vereshchagin, K. I. - 520, 643
 Verkhoturov, A. D. - 507
 Verkhovets, A. P. - 361
 Vil'chek, A. I. - 131
 Vladimirov, L. P. - 745
 Volchok, I. P. - 103
 Volkov, Yu. K. - 637
 Voronkin, N. F. - 51
 Vygovskii, I. P. - 511

Y

Yakubova, G. P. - 714
 Yanchishin, F. P. - 245, 265
 Yarema, S. Ya. - 142, 467, 561
 Yaremchenko, N. Ya. - 95, 226, 242, 304, 616
 Yarkovoi, V. K. - 103
 Yatsenko, Yu. F. - 268
 Yatsyuk, M. M. - 635
 Yavor, A. A. - 385
 Yumatova, V. I. - 59
 Yurchenko, D. Z. - 418
 Yushchenko, V. S. - 81

Yushkevich, Z. V. - 228

Z

Zabashta, V. F. - 369
 Zafliovskii, Yu. M. - 48, 273
 Zagoruiko, N. V. - 496
 Zagoruiko, R. F. - 111, 240, 486, 612, 711
 Zaika, A. Ya. - 51
 Zaitsev, G. Z. - 646
 Zakharenko, L. E. - 594
 Zakharov, A. P. - 693
 Zakharov, A. V. - 433, 739
 Zalibakin, D. I. - 45
 Zamikhovskii, V. S. - 356
 Zamiryakin, L. K. - 9
 Zamora, M. F. - 336
 Zamostyanik, I. E. - 93
 Zarutskii, G. I. - 722
 Zbozhnaya, O. M. - 268, 537
 Zelenev, Yu. V. - 127
 Zhagalyak, N. N. - 1
 Zhavoronkov, Yu. V. - 86
 Zherdev, Yu. V. - 185, 438, 457
 Zhikharev, V. S. - 67
 Zholobova, E. P. - 139
 Zorii, L. M. - 349
 Zuev, Yu. S. - 414
 Zvezdin, Yu. I. - 311, 686
 Zyubrik, A. I. - 392

SOVIET MATERIALS SCIENCE

Volume 7, Numbers 1-6, 1971

(A translation of Fiziko-Khimicheskaya Mekhanika Materialov)

Volume 7, Number 1

January-February, 1971

Eng./Russ.

STRESS CORROSION

Stress Corrosion Cracking of Welded Joints between Dissimilar Materials

-N. N. Zhagalyak, I. I. Vasilenko, and G. V. Karpenko 1 3

Kinetics of Change in Electrode Potential in Stress Concentrators-Z. G. Dutsyak

and Yu. I. Babei 6 9

On "Quasimartensite" and the Corrosion Cracking of Austenitic Chromium-Nickel

Steels-L. K. Zamiryakin 9 11

The Ignition of a Low-Alloy Titanium α Alloy during Fracture in an Oxygen-Containing Atmosphere-V. I. Deryabina, N. N. Kolgatin, O. P. Luk'yanov, R. S. Mikhaleva,

and V. P. Teodorovich 14 16

PHYSICS AND CHEMISTRY OF FRICTION AND MATERIAL WEAR

Application of Factorial Experimental Design in a Study of Metal Friction

-V. D. Evdokimov, V. I. Ryaboshapchenko, and R. P. Bushko 18 20

Effect of Surfactants on the Dilatometric Characteristics and Electrical Resistance

of Metals Deformed by Friction-L. F. Kolesnichenko and G. S. Terekhin 22 24

Mechanism of the Action of Surfactants in the Fine Abrasive Treatment of Metals

-N. I. Bogomolev 27 29

Investigation of Solid Films on Bearing Surfaces by the Method of Electrical

Conductivity-M. V. Raiko and V. P. Kadomskii 31 33

Influence of a Perpendicular Load and the Diameter of the Indentor on the Tangential

Strength of the Adhesive Bond-N. M. Mikhin and K. S. Lyapin 34 36

Relationship between Wear Resistance and the Failure Energy of the Strengthening

Phase of Alloys-V. S. Popov, P. L. Nagornyi, and A. B. Shumikin 39 41

EFFECT OF STRUCTURE AND WORKING MEDIA ON THE PROPERTIES OF MATERIALS

Electron-Fractographic Study of Low-Carbon Steel Containing 9% Chromium

-A. I. Rizol, T. P. Vashchilo, and D. I. Zalibakin 45 48

The Nature of the Corrosion-Fatigue Failure of Austenitic Steel in Hot Chloride

Solutions-G. V. Karpenko, N. N. Tkachenko, Yu. M. Zafilovskii, V. V. Potapov,

and K. P. Tabinskii 48 51

The Fatigue Resistance of Elements of an Aircraft Skin Attacked by Corrosion

-A. V. Karlashov, A. I. Radchenko, A. Ya. Zaika, and N. F. Voronkin 51 53

Thermoelectric Phenomena in Fretting Corrosion-N. L. Golego, A. Ya. Alyab'ev,

V. V. Shelvelya, and N. S. Kulagin 54 56

Effect of Alloying Armco Iron on the Properties of Composite Joints-V. R. Ryabov,

V. I. Yumatova, and A. P. Butnik 59 61

EFFECT OF RADIATION ON THE PROPERTIES OF MATERIALS

Some Features of Radiation Creep and Lifetime of Polymers-V. F. Stepanov,

S. É. Vaisberg, and V. L. Karpov 62 65

Effect of Irradiation on the Mechanical Properties of Low-Density Polyethylene Films -G. I. Glukhovskaya, A. V. Nikit-skii, V. S. Zhikharev, A. M. Kabakchi, A. I. Soshko, and A. N. Tynnyi	67	70
Some Problems in the Strength and Durability of Polymethyl Methacrylate under the Action of Ultraviolet Radiation-Z. A. Bazilevich and A. N. Tynnyi	71	74
Effect of Neutron Irradiation on the Properties of Some Cermet Antifriction Materials -I. M. Fedorchenko, E. A. Markovskii, V. I. Tikhonovich, V. V. Pushkarev, and B. A. Kirievskii	75	78
BRIEF COMMUNICATIONS		
Dynamic Flexural Stresses in a Thin Plate with Foreign Inclusions-R. N. Shvets	78	82
Adsorption-Induced Loss of Strength in Noneutectic Systems-V. S. Yushchenko, Z. M. Polukarova, and E. D. Shchukin	81	85
Contact Interaction of Titanium Carbide with Titanium, Zirconium, and Vanadium in Vacuo -L. V. Strashinskaya	83	86
Gas Permeability in Steels and Alloys-L. M. Ammosova, N. S. Borisova, Yu. V. Zhavoronkov, A. I. Nikonorova, N. P. Soboleva, and A. T. Shiryaev	86	88
Range of Application of the Henry and Sieverts Laws for Solutions of Oxygen and Nitrogen in Niobium-Yu. A. Dushin and S. K. Mikhailov	89	91
Adsorptive Contact Fatigue of Quenched Steel-K. B. Katsov	91	92
Possible Errors in the Measurement of Electrode Potentials and Ways of Decreasing Them-I. E. Zamostyanik	93	94
Influence of Electrolytic Hydrogen Absorption on the Character of Failure of Armco Iron in Torsion-N. Ya. Yaremchenko, M. M. Shved, and G. V. Karpenko	95	96
The Interrelationship of Fretting Corrosion of Metals and Their Capacity for Dissipation of Mechanical Energy-A. Ya. Alyab'ev, V. V. Shebelya, and B. E. Otblesk	98	98
Resistance to Corrosion Fatigue of Duralumin D16T Anodized at Various Temperatures -A. V. Karlashov and R. G. Gainutdinov	100	99
Effect of Residual Aluminum of Physicomechanical Properties of 30KhNML Steel -S. I. Gladkii, V. P. Rudenko, I. P. Volchok, A. B. Kuslitskii, V. K. Yarkovoi, and I. I. Kurilo	103	102
Effect of Aluminizing and Chromizing on Some Mechanical Properties of Medium-Carbon Steels at Elevated Temperatures-V. S. Pikh	106	104
Thermal Investigation of the Rubbing Surfaces of Hinged Joints-V. S. Pavlenko and G. A. Preis	108	105
A Machine for Testing Metals in a Sulfur Slurry-R. F. Zagoruiko, Yu. I. Babei, and G. V. Karpenko	111	107
Propagation of Cracks in Composite Materials-V. V. Panasyuk, L. T. Berezhnitskii, and I. I. Trush	113	108
Stressed State of a Cylindrical Shell Partially Immersed in a Medium with a Constant Temperature-B. L. Pelekh and I. G. Sirenko	116	111
Development of a Crack in Plastic Material-A. S. Mineev	119	113
Study of the Friction and Wear of Heat-Resistant Plastic Phenylon and Its Copolymer -O. G. Prikhod'ko, A. N. Trofimovich, and I. A. Fomichev	121	115
BOOK REVIEWS		
V. V. Panasyuk. Limit Equilibrium of Brittle Bodies with Cracks-G. I. Barenblatt	124	117
CHRONICLES		
First All-Union Symposium on Prediction of the Operating Properties of Polymeric Materials-Yu. V. Zelenev	127	119

INFLUENCE OF STRUCTURE AND OPERATING MEDIA ON THE PROPERTIES OF MATERIALS

An Investigation of the Contact Resistance of Steels with Different Heat Resistances - I. P. Banas, A. I. Vil'chek, P. A. Mikhailov, and V. E. Ol'shanetskii	131	3
Some Surface Effects in the Fatigue of Metals - D. I. Shetulov	135	7
Low-Temperature Tempering of Large Welded Vessels - O. I. Steklov, V. D. Repin, V. I. Artem'ev, E. P. Zholobova, and G. M. Guseva	139	11
Plastic Deformation at Ring-Shaped Cracks in Cylindrical Specimens for Various Temperatures and Loading Rates - S. Ya. Yarema and Z. M. Manyuk	142	15
Several Characteristics of the Mechanism of Fretting-Corrosion - A. Ya. Alyab'ev and V. V. Shevelya	146	18
Effect of Thermomechanical Treatment on the Failure Energy of Medium-Carbon Steels - O. N. Romaniv, I. R. Dyakiv, and N. L. Kuklyak	151	24
Effect of the Corrosion Medium on the Cavitation-Erosion Resistance of Brasses - I. N. Bogachev, Yu. G. Veksler, and Yu. A. Karasyuk	155	28

PHYSICOCHEMICAL MECHANICS OF POLYMERS

Selectivity of the Reduction in the Strength of Polymer Materials subject to the Action of Surface-Active Substances - E. D. Shchukin, A. I. Soshko, O. A. Mikityuk, and A. N. Tynnyi	160	33
Effect of Intermolecular Interaction on the Strength of Vitreous Polymers - A. I. Soshko	166	39
Effect of the Type of Stress State on the Temperature-Time Dependence of the Strength of Polystyrene - B. N. Narzullaev, A. I. Khukmatov, and P. G. Erfan	171	45
Effect of Hardening of the Polymer Binder on the Physicochemical Properties of a Glass-Fiber Reinforced Plastic - V. V. Lushchik, I. G. Malitskaya, and A. A. Kritsuk	175	49
Effect of Liquid Media on Durability of Oriented Polymethyl Methacrylate - A. N. Tynnyi, N. A. Ol'khovich-Novosadyuk, A. I. Soshko, N. G. Kalinin, and B. V. Perov	179	53
Effect of Electric Charges on the Strength Characteristics of Polytetrafluoroethylene Film - S. A. Abasov, T. F. Abbasov, and M. A. Bagirov	182	56
Effect of Metallization of Polymer Films on Their Gas Permeability - M. M. Gudimov, Yu. V. Zherdev, A. V. Koryukin, and V. A. Kozlov	185	59

PHYSICOCHEMICAL THEORY OF DEFORMATION AND FRACTURE

Interaction of Collinear Cracks - L. T. Berezhnitskii, V. V. Panasyuk, and R. G. Arone	189	64
Optimal Heating of a Heterogeneous Cylindrical Shell - Ya. S. Podstrigach, Ya. I. Burak, and L. P. Besedina	192	67
Limiting Equilibrium of a Plate with a Crack and with Emission of Heat from Lateral Surfaces - O. V. Poberezhnyi	198	75
Approximate Method of Determining the Specific Energy of Rupture for Plastic Materials - A. S. Mineev	202	79

EXPERIMENTAL METHODS

A Method for Corrosion-Fatigue Testing with Severe Loading in Media at Elevated Temperatures and Pressures - G. V. Karpenko, N. N. Tkachenko, B. F. Kollushko, V. V. Potapov, and V. G. Azbukin	205	82
Full-Scale Corrosion-Fatigue Testing of Boring Tubes - P. G. Pogoretskii, N. A. Severinichuk, A. M. Prishlyak, I. I. Kadar, and G. V. Karpenko	208	84
Investigation of Boundary Layers on Metal Surfaces by the Contact Potential Difference Method - L. F. Kolesnichenko and V. V. Kovbasenko	211	86

Large-Scale Standardization, Unification, and Automation of Laboratory Vacuum Equipment - R. I. Van'kovich, R. I. Kripyakevich, I. I. Sidorak, R. G. Parkheta, and I. V. Semchishin.	215	90
Machine for Studying the Kinetics of Crack Development in Sheet Metal at High Temperatures - M. I. Chaevskii, I. V. Kondratenkov, A. S. Mineev, and M. G. Khitarishvili	219	93
Method of Testing Materials for Corrosion Strength with Various Forms of Loading - G. A. Preis, V. K. Suprunchuk, E. P. Ponomarenko, Yu. V. Tovstenko, L. P. Kanchenko, and V. V. Suprunchuk	221	95
BRIEF COMMUNICATIONS		
Reaction between Chromium Carbide and Molten Copper - V. N. Eremenko, L. N. Mekhanoshina, and M. M. Churakov	223	98
The Scaling Factor when Torsion-Testing Armco Iron in the Hydrogen Absorption Process - N. Ya. Yaremchenko and M. M. Shved	226	100
Effect of Electric Slag Remelting on the Corrosion-Cracking Resistance of Steel 16GNMA - I. I. Vasilenko, R. K. Melekhov, N. A. Langer, and Z. V. Yushkevich	228	101
Cracking of Quenched Steel U8 in Inhibited Water - O. V. Kurov, I. I. Vasilenko, and R. P. Svisgun.	230	103
Effect of Inhibitors on Corrosion Cracking of High-Strength Steel in an Aqueous Solution of Hydrogen Sulfide - A. K. Mindyuk, V. P. Koval', I. I. Vasilenko, and Yu. I. Babel.	232	104
Effect of Previous Corrosion on the Fatigue Strength of Joints Made of Aluminum Alloys - G. S. Suvorova and V. N. Shavyrin	234	106
The Character of Fatigue Fractures of D16T Duralumin - A. V. Karlashov and V. P. Tokarev	236	107
Corrosion of Fatigue Strength of Surface-Hardened Smooth Rollers - A. A. Merkushev and M. S. Nemanov	238	109
Reasons for the Failure of Parts Working in a Sulfur Pulp - G. V. Karpenko, R. F. Zagoruiko, and Yu. I. Babel	240	111
The Stability of Surface Hardening in Stainless Steels of the Martensite Class - G. V. Karpenko, T. N. Kalichak, V. I. Pokhmurskii, M. M. Shved, and N. Ya. Yaremchenko.	242	113
Influence of Vacuum on the Structure and Some Mechanical Properties of Steel 08kp - G. G. Maksimovich, N. P. Drozd, F. P. Yanchishin, and S. M. Kudlak	245	115
Effect of Marforming on the Strength of Steel - B. N. Shul'ga, R. G. Moiseev, Yu. I. Babel, and I. S. Sorokivskii	248	118
Investigation of the Resistance to Surface Cracking in Vacuo Air and Nitrogen of Polymethylmethacrylate Glass - E. G. Sentyurin, E. S. Oskina, M. M. Gudimov, and B. V. Perov	251	121
Sixtieth Birthday of Grigoriĭ Isaakovich Fuks	253	123

Volume 7, Number 3 May-June, 1971

The Physicochemical Mechanics of Materials - G. V. Karpenko	255	3
EFFECT OF STRUCTURE AND WORKING MEDIA ON PROPERTIES OF MATERIALS		
Relationship between the Scalar Effect in the Fatigue Corrosion of Steel and Stress Concentration - R. G. Pogoretskii, M. M. Matseiko, and G. V. Karpenko	262	11
Corrosion-Fatigue Strength of Duralumin D16 Previously Deformed in Tension - G. G. Maksimovich, F. P. Yanchishin, Ya. S. Shehepanskii, S. V. Nagirnyi, and T. N. Kalichak	265	14
Seizure of Grade 1Kh18N9T Steel in Vacuo at High Temperatures - I. G. Shtykalo, Yu. F. Yatsenko, V. F. Shatinskii, and O. M. Zbozhnaya	268	17

Effect of Preliminary Static and Cyclic Loading on the Corrosion Fatigue Strength of Kh18N9T Stainless Steel in Hot $MgCl_2$ Solution - Yu. M. Zafirovskii and N. N. Tkachenko.	273	22
Experimental Study of the Propagation Kinetics of Disc-Shaped Cracks Having an Oval Form in Plan - V. V. Panasyuk and N. D. Dmitrakh	277	25
Effect of Loading Frequency on the Fatigue Strength of Some Pure Metals - V. V. Shibarov, D. I. Shetulov, and L. D. Sokolov	280	29
Some Physicochemical Properties of Boron-Copperized Steel - G. N. Kormilitsyna and L. V. Il'ina	283	32
Durability of Born-Siliconized Coatings in Vacuum and in Air - I. Kh. Trush, V. G. Permyakov, N. N. Golego, L. F. Krivenko, and V. F. Labunets	285	35
Some Patterns of Wear in Metals and Metal-Like Carbides in a Vacuum at Low Temperatures - V. I. Alekseev and M. S. Koval'chenko.	288	38
The Role of Adhesion in the Interaction between an Abrasive and a Metal - N. I. Bogomolov, Yu. A. Kazimirchik, G. I. Sayutin, I. V. Kharchenk, and B. K. Kulik	292	42
Effect of the Catalytic Decomposition Products of Lubricating-Cooling Liquids and Gases on the Process of Metal Cutting - V. N. Latyshev	296	46
Special Characteristics of the Interaction between a Laser Beam and Metals - G. V. Plyatsko, M. I. Moisa, and V. M. Khirovetskii	300	50
EFFECT OF HYDROGEN ON THE PROPERTIES OF STEEL		
Effect of Hydrogen on the Strength of Iron - G. V. Karpenko, N. Ya. Yarmchenko, and M. M. Shved	304	54
Diffusion, Permeability, and Solubility of Hydrogen and Deuterium in Alloys of Palladium with Nickel - V. A. Gol'tsov, V. B. Demin, P. V. Gel'd, and G. E. Kagan	307	56
Hydrogen Permeability of Alloys of Iron with Chromium and Aluminum - R. I. Kripyakevich, Yu. I. Zvezdin, V. M. Sidorenko, I. I. Sidorak, and B. F. Kachmar.	311	60
Influence of Refining Constructional Steels with Synthetic Slags in the Ladle on the Strength and Wear Resistance in a Liquid Hydrogenating Medium - V. S. Pavlov, L. N. Davydova, A. B. Kuslitskii, I. I. Kurilo, and V. G. Starchak	315	65
Influence of the Composition and Acidity of a Medium on the Hydrogen Brittleness of High-Strength Steels - S. Sh. Podolskaya, V. A. Timonin, and M. N. Fokin	318	68
Hydrogen Overvoltage and the Electronic Structure of Metals - A. K. Mindyuk	321	71
EFFECT OF METALLIC MELTS ON THE PROPERTIES OF STEEL		
Time-Strength Relationship of Polycrystalline Zinc in the Presence of Mercury - N. I. Ivanova, N. V. Pertsov, Yu. V. Goryunov, and E. D. Shchukin	327	77
Effect of Surface Preparation and Area of Mercury Coating on the Nature of the Failure of Zinc Single Crystals - G. I. Den'shchikova, B. D. Summ, A. I. Traktovenko, and Yu. V. Goryunov	331	82
The Fatigue Strength, in a Pb-Bi Eutectic Melt, of Steel 15KhS1MFB Smelted in the Ordinary Way and in Vacuo - A. L. Bichuya, V. V. Popovich, M. F. Zamora, V. L. Mizetskii, and G. K. Shil'nikova	336	86
Influence of Lithium Vapor on Crystal Structure of Tungsten and Molybdenum - M. V. Mel'nikov, L. N. Larikov, V. T. Cherepin, V. M. Belkov, M. A. Vasil'ev, Yu. N. Ivashchenko, V. I. Isaichev, and E. A. Maksimenko	340	90
BRIEF COMMUNICATIONS		
Temperature Dependence of the Coefficient of Friction of Some Refractory Carbides - G. V. Samsonov and Yu. G. Tkachenko	343	94
Mechanism of Dislocation Maxima of Internal Friction - E. V. Borisov and G. A. Vedenyapin	346	96
Relationship of the Low Frequencies of Deformation Systems to the Parameters - A. I. Balinskii and L. M. Zorii	349	99

Reconstruction of the MI-1 Machine for Abrasion Testing of Specimens in Corrosive Media, at Raised Temperatures and Pressures - S. L. Milichenko and E. N. Matveishin	351	101
A Plant for Applying Plasma Coatings - N. L. Golego, P. F. Truskov, Yu. M. Koval'chuk, and V. G. Panamarchuk	353	102
Influence of Aluminizing Methods on the Cyclic Stability of Steel Kh5M - I. N. Kidin, V. I. Pokhmurskii, V. I. Andryushechkin, V. S. Zamikhovskii, N. M. Levtonova, and D. D. Brodyak	356	104
Fatigue Strength of Construction Steel Covered with Polythene - É. Ya. Beider, M. M. Gudimov, V. I. Tkachev, A. K. Litvin, and A. I. Soshko	358	106
Change in Properties of PVC Fibers during Prolonged Heating - V. G. Raikin, O. S. Lelinkov, L. E. Utevsii, A. P. Verkhovets, and A. I. Orlova	361	108
Effect of Firing Conditions and of the Number of Firings on Some of the Properties of Paste FL-1 - R. A. Gumetskii and S. I. Miktitshin	364	110
Effect of Hot Media on the Properties and Structure of Polycarbonate - V. N. Kestelman, L. N. Magazinova, T. G. Gurzhavina, and L. V. Osipova	366	112
Effect of Deformation Rate and Temperature on the Density of Filled Polyamides - V. F. Zabashta and M. T. Bryk	369	114
Investigation of Electrical Charges at the Apex of Cracks Arising with the Deformation of Polymethylmethacrylate - A. I. Soshko, I. M. Tsygel'nyi, V. A. Teterskii, and E. A. Roter	372	116
The Corrosion Cracking of Steels in Solutions of Nitrates and Alkalis - I. I. Vasilenko, I. I. Dikii, V. G. Leenson, and I. A. Novokreshchenov	374	118

Volume 7, Number 4

July-August, 1971

INFLUENCE OF STRUCTURE AND WORKING MEDIA
ON THE PROPERTIES OF MATERIALS

Corrosion-Fatigue Strength of Boring Pipes - N. A. Severinchik, R. G. Pogoretskii, A. M. Prishlyak, and G. V. Karpenko	377	3
Questions in the Electronic State of Metals and of the Effect of Temperature, Alloying, and Deformation on Their State - A. K. Mindyuk	380	6
Effect of Transitional Zone on Mechanical Properties of High-Tensile Cladded Steel - A. A. Mikheev, P. O. Pahskov, N. M. Sklyarov, and A. A. Yavor	385	11
Physical Nature of the "Frequency Effect" in the Fatigue of Duralumin in Air and in a Corrosive Medium - A. V. Karlashov and V. P. Tokarev	388	14

CORROSION UNDER STRESS

Investigation of Stress-Corrosion Cracking of High-Strength Steels in Certain Media - M. G. Khitarishvili, I. I. Dikii, A. I. Zyubrik, and I. I. Vasilenko	392	19
Effect of Machining on Corrosion Resistance in Stainless Steels - L. Ya. Gurvich and L. I. Shubadeeva	396	23
Influence of Anions on the Long-Term Strength of MA2-1 Magnesium Alloy - V. E. Belyakov and V. V. Romanov	400	27
Increase in the Resistance of Steel 17G1S to Corrosion Cracking by Refining It with a Synthetic Slag - I. I. Vasilenko, R. K. Melekhov, A. Yu. Shul'te, and E. S. Kalinnikov	403	31

PHYSICAL CHEMISTRY OF FRICTION AND WEAR OF MATERIALS

Study of the Physicochemical Interaction of the Solid Lubricant MoS ₂ with Metals - V. A. Al'tman, V. M. Valakina, Ya. A. Gluskin, V. L. Memelov, P. P. Pashkov, T. V. Peregodova, and A. A. Fridman	406	34
Effect of Technological Factors on the Friction and Wear of Filled Teflon - P. A. Severin, M. T. Stadnikov, and V. V. Fedorenko	410	38
The Effect of Oils on Rubbers with Friction on a Smooth Surface - Yu. S. Zuev, A. Z. Borshchevskaya, and G. G. Kamenskaya	414	41

Effect of Temperature on the Condition of Niobium Carbide Surface Layer during External Friction—M. S. Koval'chenko, Yu. G. Tkachenko, D. Z. Yurchenko, and L. A. Klochkov	418	45
Protection of Aluminum Alloys from Wear in a Jet of Abrasive—V. M. Pleskach, P. A. Averchenko, and V. I. Paslen	421	48
Strain Hardening of Alloys during Abrasive Wear—V. S. Popov, N. N. Brykov, and P. L. Nagornyi	424	51
Resistance of Alloys Subject to Gas-Abrasive Wear—A. F. Tereshchenko and V. A. Gavrish	429	56
PHYSICOCHEMICAL MECHANICS OF POLYMERS		
The Durability of Glass Fibers in Atmosphere and in Vacuum—G. M. Bartenev and A. V. Zakharov	433	60
Effect of Water on the Microstructure and Strength of Glass Laminates—I. S. Deev, Yu. V. Zherdev, A. Ya. Korolev, and G. P. Semenova	438	64
Effect of Liquid Media on the Mechanical Properties of Triacetate Films—Ya. Mukhammed, N. V. Pertsov, N. F. Bakeev, and P. V. Kozlov	442	68
Investigation of the Resistance of Polyethylene Coatings to Ultraviolet Aging—E. Ya. Beider, I. V. Smolyanitskaya, E. G. Sentyurin, and A. I. Soshko	445	72
Connection between Supermolecular Formations of Polystyrene and Its Physicomechanical Properties in Heat Treatment—N. M. Dashko and E. A. Sporyagin	448	74
Effect of Radiation Dose on Radiation Creep of Polymers—V. F. Stepanov, S. É. Vaisberg, and V. L. Karpov	452	78
BRIEF COMMUNICATIONS		
Gas Permeability of PTFE Tubes—Yu. V. Sytsi, B. I. Molchanov, M. M. Gudimov, Yu. V. Zherdev, A. I. Soshko, E. S. Golovastov, A. N. Tynnyi, and N. G. Kalinin	457	84
Effect of Liquids on Type of Failure and Mechanical Properties of Isotactic Polypropylene—A. I. Soshko, Ya. M. Spas, and A. N. Tynnyi	459	86
Stress Classification in Reinforced Plastics—V. F. Sarabeev, S. M. Perlin, and G. K. Shreiber	462	88
Investigation of Creep of Polycarbonate in Corrosive Media—V. N. Kestel'man, L. N. Magazinova, R. A. Denisova, and Yu. I. Anosov	464	89
Temperature Field in a Plate Containing a Semiinfinite Crack with Side Surface Heat Transfer—M. P. Savruk and S. Ya. Yarema	467	92
Shrink Fitting of Rings on Cylindrical Shells—B. L. Pelekh and R. D. Sysak	470	94
Interaction between Two Quasi-Collinear Cracks—L. T. Berezhnitskii and V. V. Panasyuk	473	96
Determination of Residual Stresses in a Spherical Shell—V. A. Osadchuk	476	99
On Separating the Resistance to the Generation and Propagation of Cracks—O. N. Romaniv and Yu. D. Petrina	479	102
Effect of Adsorptional Interaction of the Medium on the Development of Slip Lines during Fatigue—V. I. Didoshak, V. B. Dalisov, and V. I. Pokhmurskii ...	482	104
Effect of Ultrasonic Treatment in an Oil-Abrasive Medium on the State of the Surface and Some Properties of Medium-Carbon Steel—V. P. Popov, V. A. Izyumov, V. I. Pokhmurskii, K. P. Tabinskii, and V. M. Golubets	484	105
Effect of Roller Treatment on the Resistance of Kh18N10T Steel to Corrosion Cracking in Sulfur-Containing Pulp—R. F. Zagoruiko, Yu. I. Babel, and G. V. Karpenko	486	107
Inhibiting Effect of Some Anions on the Dissolution of Steel in Sulfuric Acid—A. K. Mindyuk, O. P. Savitskaya, and Yu. I. Babel	489	108
Effect of Boron-Plating of Medium-Carbon Steel on Its Mechanical Properties and Wear Resistance—V. I. Pokhmurskii, R. G. Vagulla, K. P. Tabinskii, and Ya. S. Gribovskii	491	110

Electrochemical Properties of Steel after Certain Types of Grinding - V. I. Ivanets	493	111
Plastic Deformation of Sodium Chloride Crystals in an Electric Field at Various Temperatures - N. V. Zagoruiko	496	114
Effect of Alloying with Molybdenum and Cobalt on the Contact Resistance of Chrome Steel - N. L. Osion, O. P. Chikhachev, and N. N. Lipchin	499	116
Properties of the Products of Physicochemical Conversions at a Friction Contact - P. V. Trushko and L. F. Kolesnichenko	502	118
Change in the Mechanical Properties of 1Kh15N9S2B Steel during Carbonization in Sodium - O. V. Stakov, B. A. Nevzorov, and I. N. Luk'yanova	504	120

Volume 7, Number 5 September-October, 1971

EFFECT OF STRUCTURE AND WORKING MEDIUM ON PROPERTIES OF MATERIALS

Investigation of Some of the Laws Governing the Formation of a Hardened Layer during the Process of Electric-Spark Alloying - G. V. Samsonov, A. D. Verkhuturov, V. S. Sychev, and A. I. Bezykornov	507	3
Effect of the White Layer on the Wear Resistance of Steel 50Kh - Yu. I. Babel, V. M. Golubets, I. P. Vygovskii, B. F. Ryabov, and N. N. Gnatyshak	511	7
Effect of the Barrier Layer on the Properties of Calorized Medium-Carbon Steel - V. I. Pokhmurskii and V. S. Plkh	515	10
Effect of Electromechanical Work-Hardening on the Resistance of Drill Pipes to Corrosion-Fatigue Failure - G. V. Karpenko, A. M. Prishlyak, N. A. Severinchik, and R. G. Pogoretskii	518	13
Influence of Alloying and Microalloying on the Resistance of Steel to Cracking - K. I. Vereshchagin, Yu. I. Rubenchik, and G. V. Karpenko	520	15
Trajectory of a Corrosion Crack with a Biaxial Plane State of Stress - O. I. Steklov	523	18
Physicochemical Processes Occurring at the Grinding Surface on Titanium Alloy Components - G. I. Sayutin, V. M. Snovidov, and N. I. Bogomolov	527	22

EFFECT OF LIQUID METALS ON PROPERTIES OF STEEL

Life and Creep of Polycrystalline Zinc and Cadmium in Presence of Adsorption-Active Melts - N. I. Ivanova, N. V. Pertsov, and Yu. V. Goryunov	530	25
Effect of Mercury on the Strength Characteristics of Copper under Ultrasonic Vibrations - G. V. Mal'tsev, N. K. Martynova, and P. D. Novokreshchenov	534	29
Protection of Structural Steels by Diffusion Coatings against Corrosion in Lithium - V. F. Shatinskii, M. S. Goltzman, V. V. Popovich, and O. M. Zbozhnaya	537	32
Interaction between Graphite and Copper-Nickel Melts - V. N. Eremenko and M. M. Churakov	541	35

PHYSICOCHEMICAL THEORY FOR DEFORMATION AND FRACTURE

Effect of Rigidities on the Profiles of the Optimum Temperature Fields in the Local Heating of Orthotropic Cylindrical Shells - B. L. Pelekh and I. G. Sirenko	544	39
Safe Stress of High-Strength Solids - I. V. Razumovskaya and G. M. Bartenev	547	42
The Plotting of Parametric Heat-Resistance Diagrams Taking into Account the Temperature Dependence of the Exponent in the Kinetic Oxidation Law - V. I. Nikitin and L. A. Khegal	550	45
The Stress State in a Layer Resulting from Local Physicochemical Transformations in the Material - G. V. Plyatsko, B. G. Shelestovskii, and P. A. Savenko	556	51
Investigation of Three-Dimensional Temperature Distribution at a Crack in a Plate - S. Ya. Yarema and M. P. Savruk	561	56
Temperature Stresses in Cut-off and Straight-through Cutting Tools with Heat Transfer - Yu. M. Kolyano and V. M. Khorol'skii	567	62

EXPERIMENTAL INVESTIGATION METHODS

Unit for Elongation Tests of Metals and Alloys at Elevated Temperatures in an Ultrahigh Vacuum - V. F. Shatinskii, R. N. Garlinskii, and O. I. Kravchuk	571	66
Method and Results of an Investigation of UMB-4s Packing Materials in the Combustion Products of Aviation Fuel - M. E. Belitskii and E. I. Kuznetsov	574	68
Slave Electric Drive to Machines for Mechanical Tests of Materials in Aggressive Media - I. V. Kondratenkov and M. I. Chaevskii	577	71
Saturation of Metals with Gaseous Elements, Ionized in a Glow Discharge - V. A. Teterskii, E. A. Roter, and T. Yu. Stefyuk	581	74
Unit for Investigation of High-Temperature Friction and Wear Processes in a Vacuum and in Gas Media - V. V. Sychev, Yu. G. Tkachenko, and M. S. Koval'chenko	584	77

BRIEF COMMUNICATIONS

Effect of a Surface-Active Medium on the Processes of Hardening and Softening of Iron with Fatigue - V. I. Didoshak, V. B. Dalisov, and V. I. Pokhmurskii	586	79
The Strength of Steels, Silicon Coated by a Vapor-Gas Contactless Method - V. I. Udovitskii, A. S. Morozov, and I. A. Antipova	588	81
Effect of Vacuum Diffused Overlayers on the Properties of Niobium and Its Alloys (E) - L. M. Petrovskaya and E. P. Ponomarenko	590	82
Effect of Diffused Copper Plating on Layer Structure and Friction Parameters - P. T. Goryachev and N. S. Gorbunov	593	84
Properties of Nickel-Chrome Stainless Steel after Vacuum Chromizing - Yu. K. Belov, E. P. Ponomarenko, D. M. Petergerya, S. Ya. Panfilova, L. E. Zakharenko, and M. P. Borisenko	594	85
Effect of Anodizing on the Fatigue and Corrosion-Fatigue Strengths of Sheet Duralumin with Stress Concentrators - A. V. Karlashov and R. G. Gainutdinov	597	87
Effect of Metal Structure on Fatigue Strength of Some Titanium Alloys - V. A. Gladkovskii, M. S. Nemanov, and Yu. P. Sirin	599	89
Effect of Structure on the Dynamic Strength of Kh15N9Yu Steel - V. A. Potekhin, A. A. Rudakov, A. A. Monoshkov, and V. M. Kondratov	601	91
Effect of Nickel on Tendency of Austenite to Form Martensite under Strain and the Hydroerosion Resistance of Steels - G. V. Korotushenko, A. P. Milyakov, A. A. Marinin, and V. V. Fomin	604	93
Effect of Thermomechanical Treatment on the Cavitation Resistance of Steel Type 1Kh12VNMF - V. V. Gavranek and Z. K. Filippova	606	95
Connection between the Thermionic Work Function and the Electronic Structure of Metals - A. K. Mindyuk	608	97
Effect of Inhibitors on the Corrosion of Steel in Sulfuric Acid at Elevated Temperatures - A. K. Mindyuk, O. P. Savitskaya, E. I. Svist, and Yu. I. Babel	610	98
Corrosion Cracking of Steel Kh18N10T in Sulfur Pump - G. V. Karpenko, R. F. Zagoruiko, and Yu. I. Babel	612	99
Tensometric Study of the Absorption of Hydrogen by Steel - V. A. Timonin and I. N. Georgi	614	101
Effects of Deformation on the Thermo-EMF, Resistivity, and X-Ray Emission Spectra of Iron - N. Ya. Yaremchenko, R. S. Kozemchuk, I. S. Slabkovskii, and M. M. Shved	616	102
Structure of the Solutions of Some Triple Eutectics - Ya. I. Dutchak, N. M. Klym, and V. S. Frenchko	618	104
Self-Lubricating Antifriction Coatings - N. L. Golego, Yu. M. Koval'chuk, and P. F. Truskov	621	106
Investigation of the Wear Resistance of Some Printing-Plate Materials - O. F. Rozum, F. I. Orlov, B. V. Kovalenko, É. T. Lazarenko, and R. I. Mervinskii	624	108
Subatomic Mechanism of Wear of Sliding Surfaces of Parts - I. M. Mukha, Ya. G. Shtepan, and G. I. Val'chuk	627	111
Automation of a Rotating Compression Vacuum Gauge - R. I. Van'kovich and R. I. Kripyakevich	630	114

Strength of Polymethylmethacrylate with Photoaging in Cyclohexane - Z. A. Bazilevich, N. D. Shcherba, and A. N. Tynnyl	632	115
Mechanical Properties of Organic Glass after Prolonged Exposure to Liquid Media - M. M. Yatsyuk, L. V. Mitsai, and A. I. Soshko	635	117
Effect of an Aggressive Medium on the Elastic Properties of Polypropylene - Yu. K. Volkov	637	118
Temperature-Time Dependence of the Strength of Fibers - A. Sh. Rakhmatov, B. N. Narzullaev, and P. G. Érfan	639	120

Volume 7, Number 6 November-December, 1971

EFFECTS OF STRUCTURE AND WORKING MEDIA ON PROPERTIES OF MATERIALS

Electrochemical Behavior of 16GS Steel with Defective Polarization Layers in 25% NaOH + 0.5% PbO - V. A. Feoktistov, K. I. Vereshchagin, Yu. I. Rubenchik, and G. V. Karpenko	643	3
An Investigation of the Influence of Cycle Asymmetry on the Resistance to Corrosion Fatigue of Steels - G. Z. Zaitsev, P. I. Kudryavtsev, and R. M. Faradzhov	646	6
Strength of Welds between Steels 20 and Kh18N10T at 20-500°C - V. F. Terent'ev, V. N. Stepanov, and L. I. Maslov	651	11
Effect of Surface Hardening and Environment on Certain Properties of Monolayer Compositions Based on Aluminum and Tin - V. S. Kopan', A. V. Lysenko, and V. D. Mikhalko	654	15
Structural Changes in Iron in Adsorption Fatigue - V. I. Pokhmurskii, V. I. Didoshak, and I. P. Gnyp	657	18
Structural Changes in the Surface Layers of Sealing Material S-137 in High-Speed Dry Friction - N. L. Golego, M. E. Belitskii, A. D. Gaidarenko, and V. A. Lyashko ..	660	20
Corrosion-Fatigue Strength of Parts of Coal Machinery in Mine Water and Some Methods for Their Protection - N. M. Derbasov	664	24
An Investigation of Fatigue-Crack Development in Prismatic Specimens with a One-Sided Notch - D. V. Lebedev and B. M. Ovsyannikov	668	27
The Character of Crack Development on Deformation of Polymethylmethacrylate in Active Media - A. I. Soshko	671	31
Effects of Liquids on the Static and Fatigue Strengths of Polycaprolactam - A. V. Stinskis, Ya. P. Baushis, and I. P. Bareishis	674	34
Deformation and Failure of Filled Polyformaldehyde under Uniaxial Tension - V. P. Gordienko and V. P. Solomko	677	37
Effect of the Molecular and Supramolecular Structure of Low Pressure Polyethylene on Its Mechanical Properties - V. P. Popov and R. A. Bal'tenas	680	41

EFFECT OF HYDROGEN ON PROPERTIES OF STEEL

Hydrogen Cracking of High-Strength Steels during Cathodic Polarization in Acid Media - F. F. Azhagin, E. V. Plaskeev, and O. A. Gubenkova	683	45
Effect of Oxide Films on Hydrogen Permeability of Iron Alloyed with Chromium and Aluminum - R. I. Kripyakevich, Yu. I. Zvezdin, A. V. Guts, and I. V. Semchishin ..	686	47
Effect of Small Palladium Additions on the Hydrogen Permeability of Medium-Alloy Steel - V. I. Arkharov, T. T. Moroz, I. A. Novokhatskii, M. I. Eremina, and S. I. Khokhlova	689	51
Influence of Surface Processes on the Permeation of Molybdenum by Hydrogen - A. P. Zakharov and V. M. Sharapov	693	54
The Hydrogen Permeability of Annealed and Deformed Carbonyl Iron - V. A. Gol'tsov, P. V. Gel'd, V. P. Levchenko, and V. B. Demin	697	58
Effect of Hydriding and Hydride Orientation on the Resistance of Zirconium-2.5% Niobium Alloy to Low-Cycle Fracture - V. M. Filatov, B. S. Rodchenkov, and I. S. Lupakov	701	62

Effect of Tempering Temperature on Hydrogen Permeability and Brittleness of Quenched Steel (A Discussion) - A. K. Mindyuk, E. I. Svist, Yu. I. Babel, and G. V. Karpenko	704	65
BRIEF COMMUNICATIONS		
Relation between Corrosion Fatigue of Metals and Variation in Their General Electrode Potentials - G. V. Karpenko, V. I. Pokhmurskii, A. M. Krokhmal'nyi, and V. B. Dalisov	709	71
The Influence of Heat Treatment on the Resistance of Kh18N10T Steel to Corrosion Cracking in Sulfur Pulp - G. V. Karpenko, R. F. Zagoruiko, and Yu. I. Babel ...	711	73
Corrosion Cracking of High-Strength Bolts - A. M. Shlyafirner, G. P. Yakubova, and F. K. Moskaleichik	714	75
Increasing the Corrosion Fatigue Strength of 35KhN1M steel by Diamond Honing - A. A. Merkushev, M. S. Nemanov, and V. M. Torbilo	716	76
Protection of Steel against Corrosion in Sulfuric Acid by Halide Anions in Conjunction with Certain Cationic Inhibitors - A. K. Mindyuk, O. P. Savitskaya, and E. I. Svist	718	77
Problem of Static Hydrogen Fatigue of High-Strength Steels - F. F. Azhagin, Yu. V. Gorshkov, and A. V. Sakharov	720	79
Effect of Impurities on Contact Fatigue Strength of ShKh15 Steel in Surface-Active Media - A. B. Kuslitskii, K. B. Katsov, and G. I. Zarutskii	722	81
Increasing the Contact Fatigue Strength of Drill Steel by Burnishing the Working Surface in Adsorption Active Media - K. B. Katsov, R. A. Khrunik, and R. N. Seif	725	93
Physicochemical Properties of Surfaces Treated with Molybdenum Disulfide - G. N. Bakakin, A. P. Lyubchenko, and M. V. Mozharov	728	85
Use of Lasers for the Relief of Residual Welding Stresses - G. V. Plyatsko, M. I. Moisa, and L. P. Karasev	731	87
Disk with External Crack Fractured by Concentrated Forces - L. L. Libatskii	733	89
Characteristics of the Destruction Process of Silicate Glass in the Atmosphere and in Vacuum - É. V. Skupskaya	736	92
Strength of Glass Fibers in a Vacuum - G. M. Bartenev, A. V. Zakharov, and A. B. Sidorov	739	94
Effect of Moisture on the Time Dependence of the Strength of Glass-Textolites - Z. P. Machavariani, K. V. Panferov, and I. G. Romanenkov	742	96
Method of Determining the Effect of Atmosphere on the Strength of Materials - G. V. Karpenko	744	97
Change in Physical Properties of Polymeric Binders in Highly Aggressive Media - L. P. Vladimirov, L. P. Komarova and E. V. Sorochko	745	98
Apparatus for the Determination of Nonsteady-State Flow of Hydrogen Diffusing through a Membrane - R. I. Van'kovich, B. F. Kachmar, I. I. Sidorak, V. M. Sidorenko, and R. I. Kripyakevich	747	99
Apparatus for the Study of Stress Relaxation - V. I. Pavlov	749	100
Equilibrium Limit of a Half Plane with an Arbitrarily Oriented Crack at Its Boundary - V. V. Panasyuk, and A. P. Datsyshin	751	102
Stresses in Lamina with an Infinite Number of Parallel Cracks under Symmetrical Loading - M. P. Savruk	753	104
Investigation of Thermal Phenomena in Electric Conductors under Stress -		
B. P. Galapats, and B. M. Gnidgets	756	106
Hydroerosion of Metals in Acid Media - A. I. Slyn'ko, G. A. Preis, and N. A. Sologub ..	759	109
INDEX		
Author Index, Volume 7, Numbers 1-6, 1971	765	
Tables of Contents, Volume 7, Numbers 1-6, 1971	769	

